



AFOTEC



AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER





Distributed Testing In Air Force OT&E

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OUTLINE



- **OSD Strategic Planning Guidance**
 - Testing in a Joint Environment
- **Air Force Distributed Mission Operations**
- **AFOTEC OT&E Applications**
- **Things To Think About**



Strategic Planning Guidance



- **“Developing and fielding joint force capabilities requires adequate, realistic test and evaluation in a joint operational context. To do this, the Department will provide new testing capabilities and institutionalize the evaluation of joint system effectiveness as part of new capabilities-based processes.**
 - “D(OT&E) will develop a roadmap for the Deputy Secretary of Defense no later than May 2004 that addresses the changes necessary to ensure that test and evaluation is conducted in a joint environment to enhance fielding of needed joint capabilities.”



Testing in Joint Environment



- **Goal**

- Adequate, realistic test and evaluation conducted in a joint environment appropriate to the maturity of the system involved
 - During development
 - Before full rate production
 - After fielding

- **Scope**

- The joint environment is an appropriate mix of live, virtual, and constructive assets which represent documented joint mission tasks

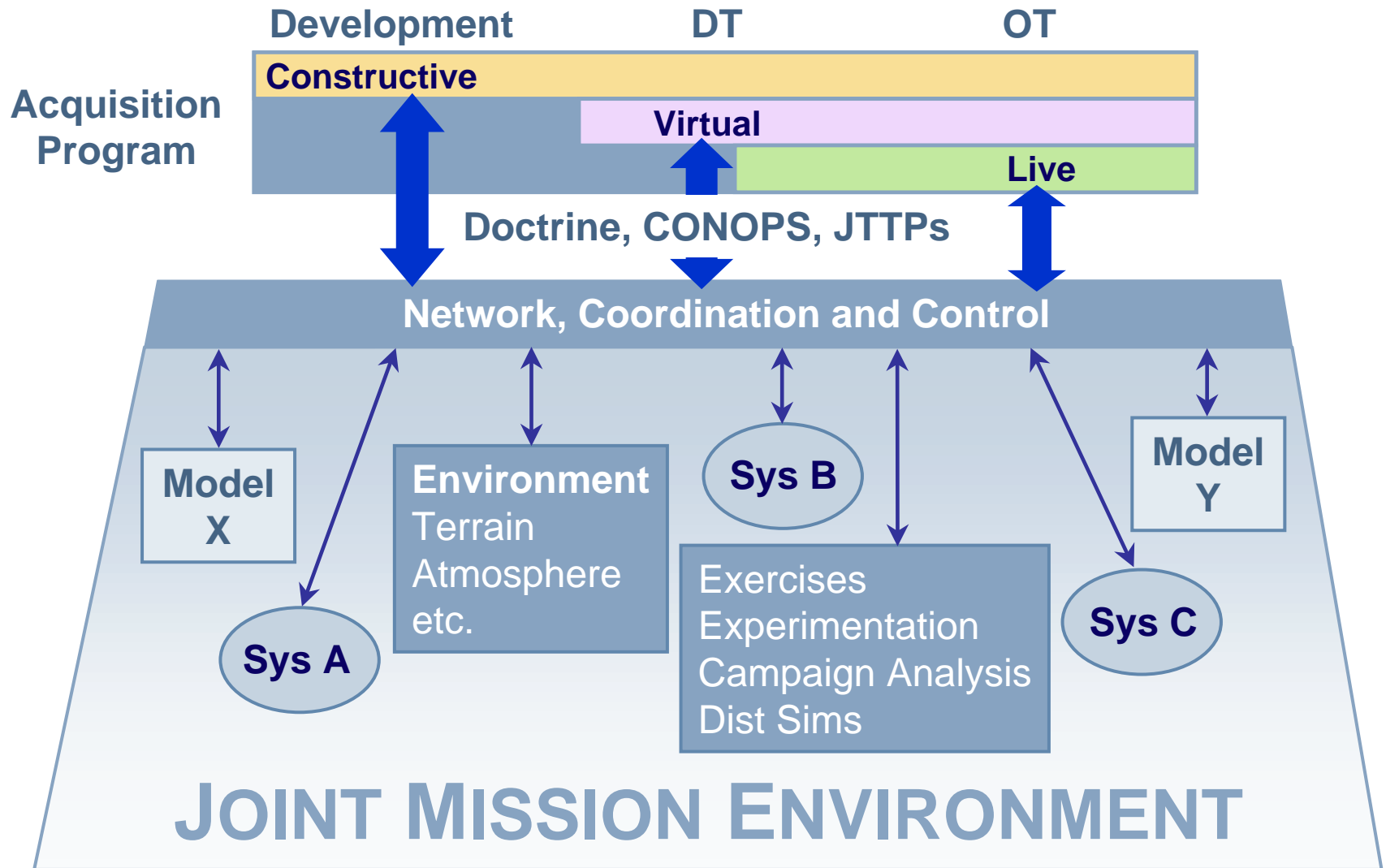


Process Elements

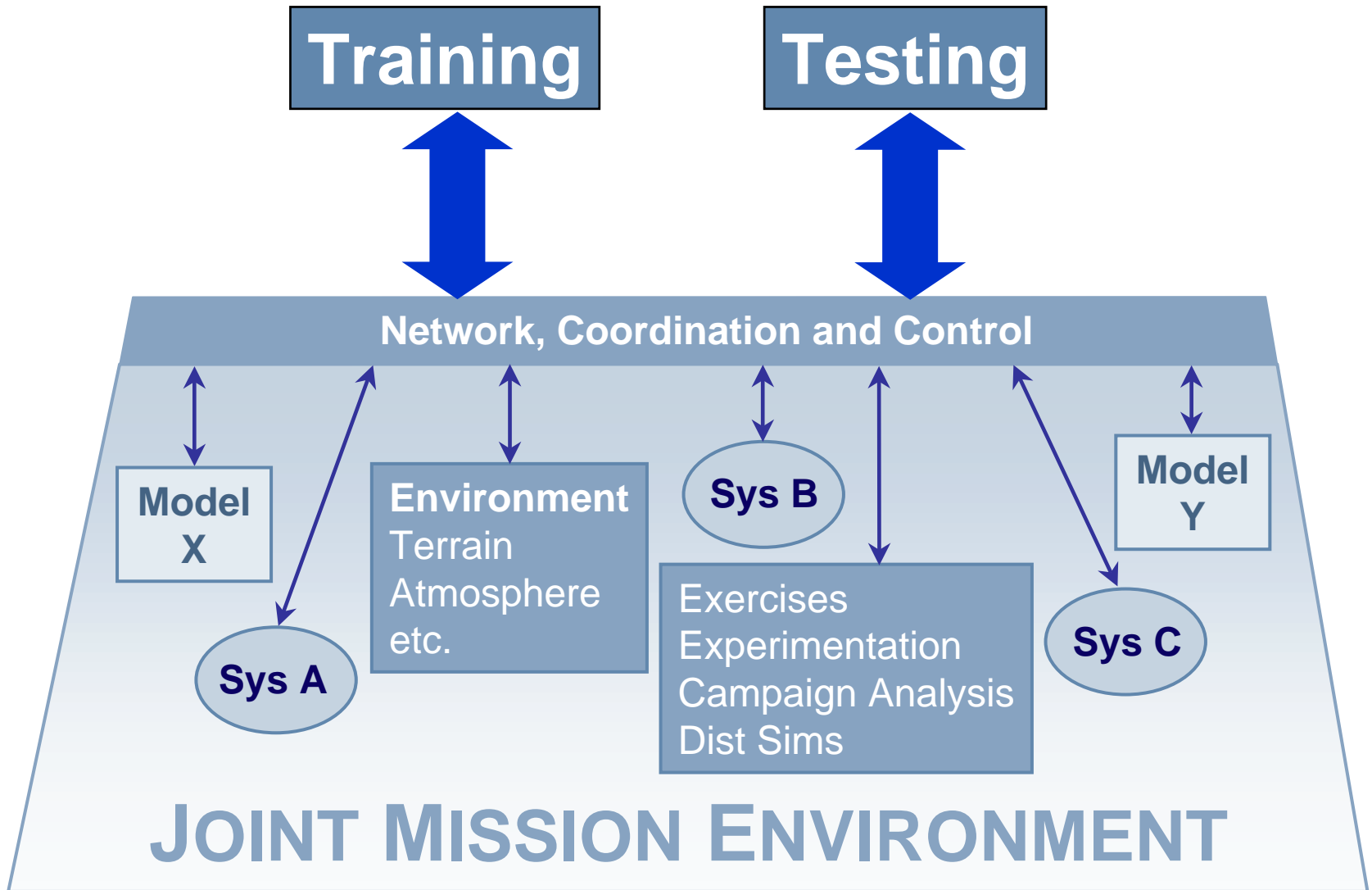


- **Joint Mission Environment**
 - Use JFCOM Joint Tactical Task (JTTs) definitions
 - Define initial requirements based on FCS and JSF in JCAS, JF, JCID and JSR Joint Tactical Tasks
 - Expand to other systems/JTTs
 - Replicate Joint Missions
 - Blue, Red
 - Networked live, virtual, constructive
 - Leverage on JNTC
 - Use exercises, existing constructive and virtual assets
- **Acquisition programs use throughout development and fielding**
 - Programs tailor use to specific interoperability and information operations requirements and Joint Mission Environment capability
 - Defined in program TEMP
 - System constructive, virtual representations compatible with Joint Mission Environment

Testing in a Joint Environment

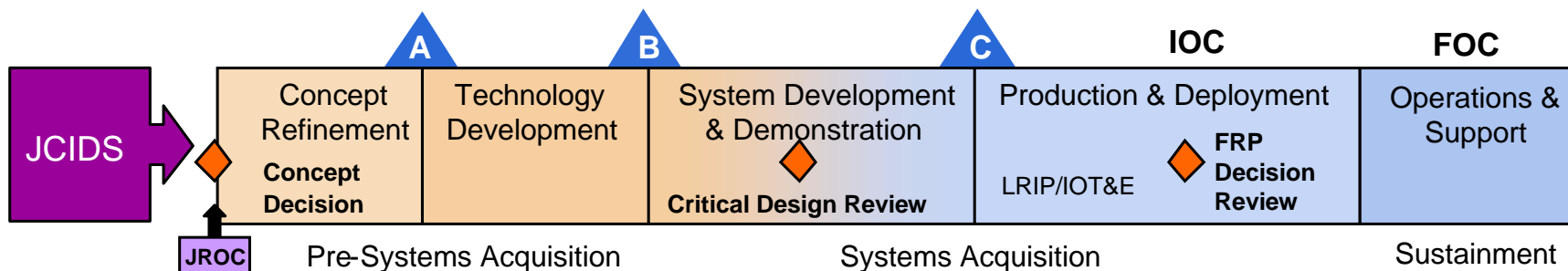


Testing in a Joint Environment



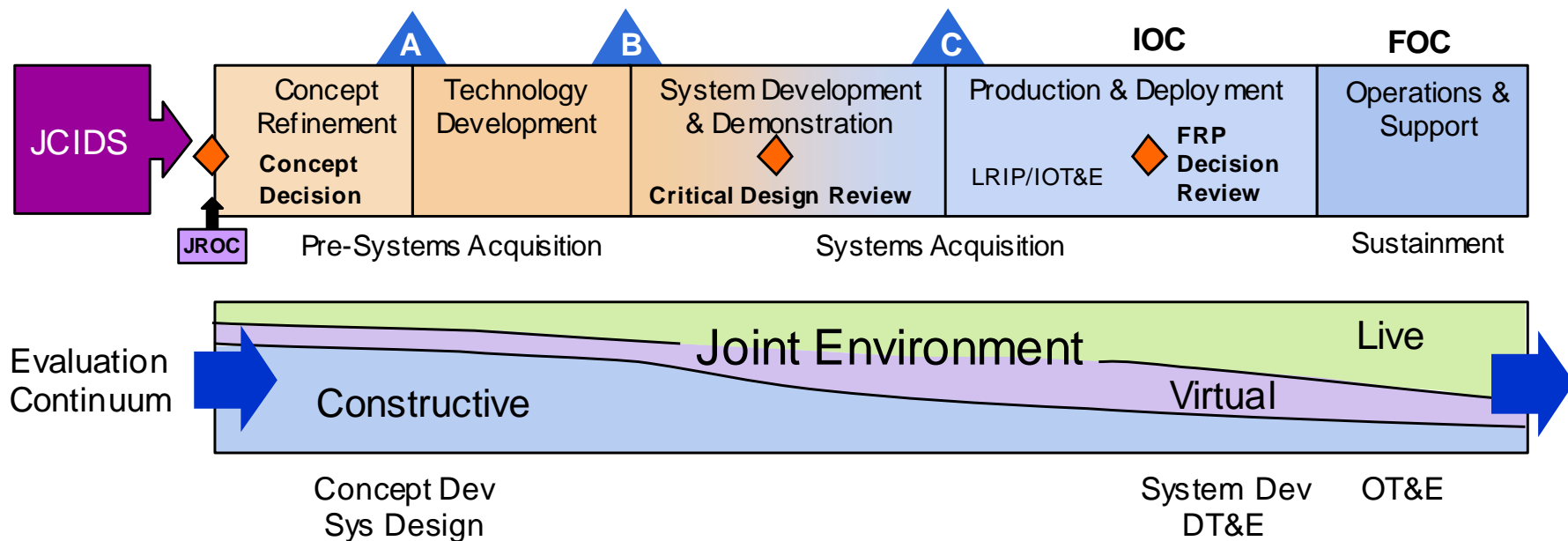


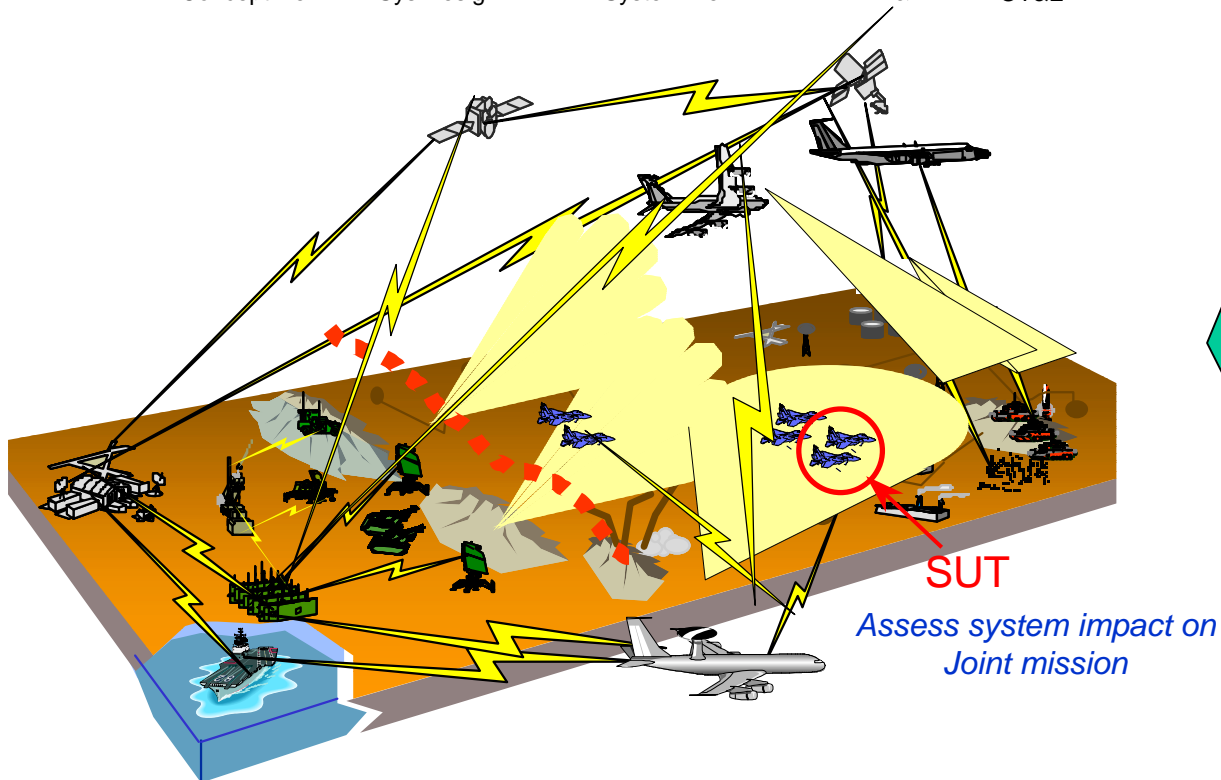
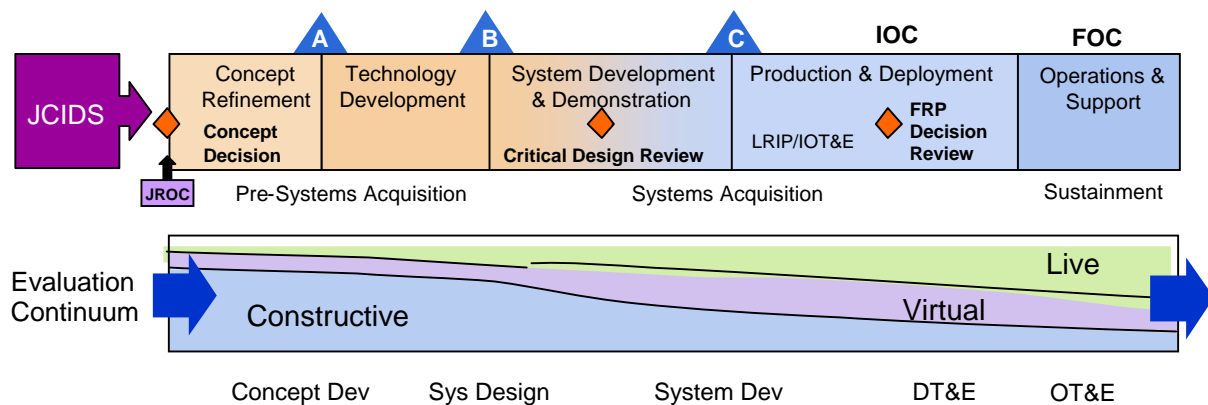
Acquisition System Testing in the Joint Environment





Acquisition System Testing in the Joint Environment (con't)





Air Force Distributed Mission Operations



Live



Virtual



Constructive

**JOINT FUNCTIONAL CONCEPTS
TRAINING TRANSFORMATION → READINESS**



Warfighter Integration -- Decision-Quality Information -- Realistic Global Battlespace

**Standards
Architecture
Databases
Infrastructure**



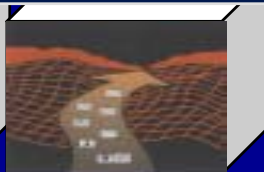
Acquisition



Training



T&E



Analysis



Ops



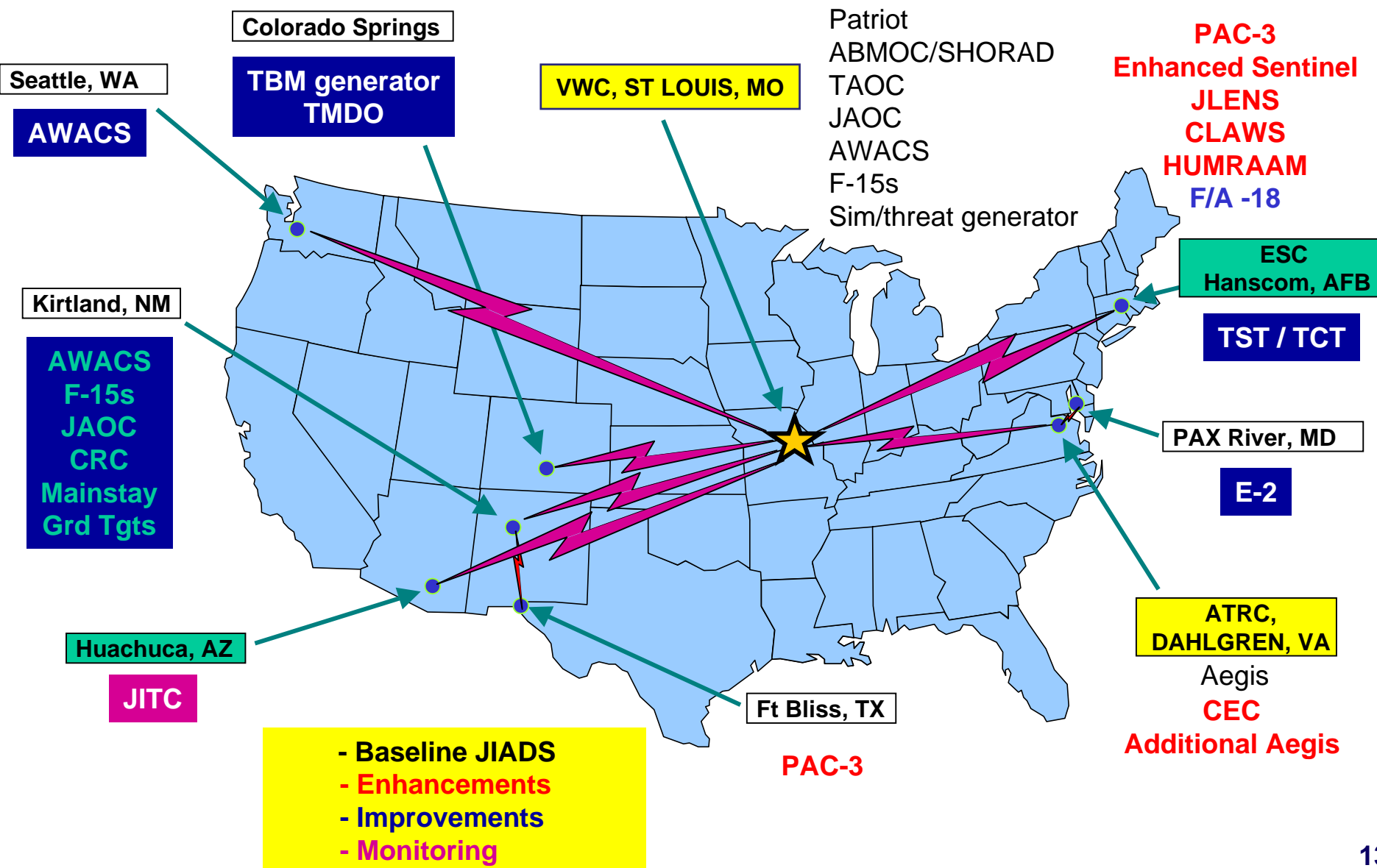
Wargames



Experiments



JCMD Simulation Architecture

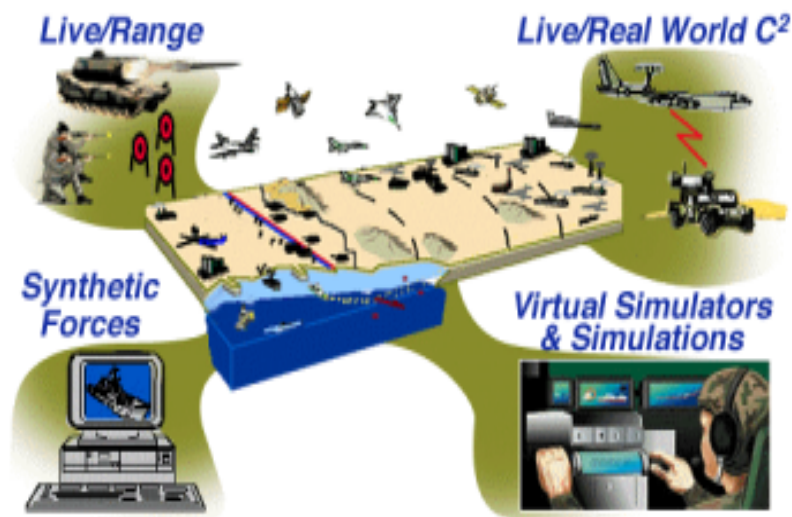




DMO and OT&E AFAMS One Year Plan

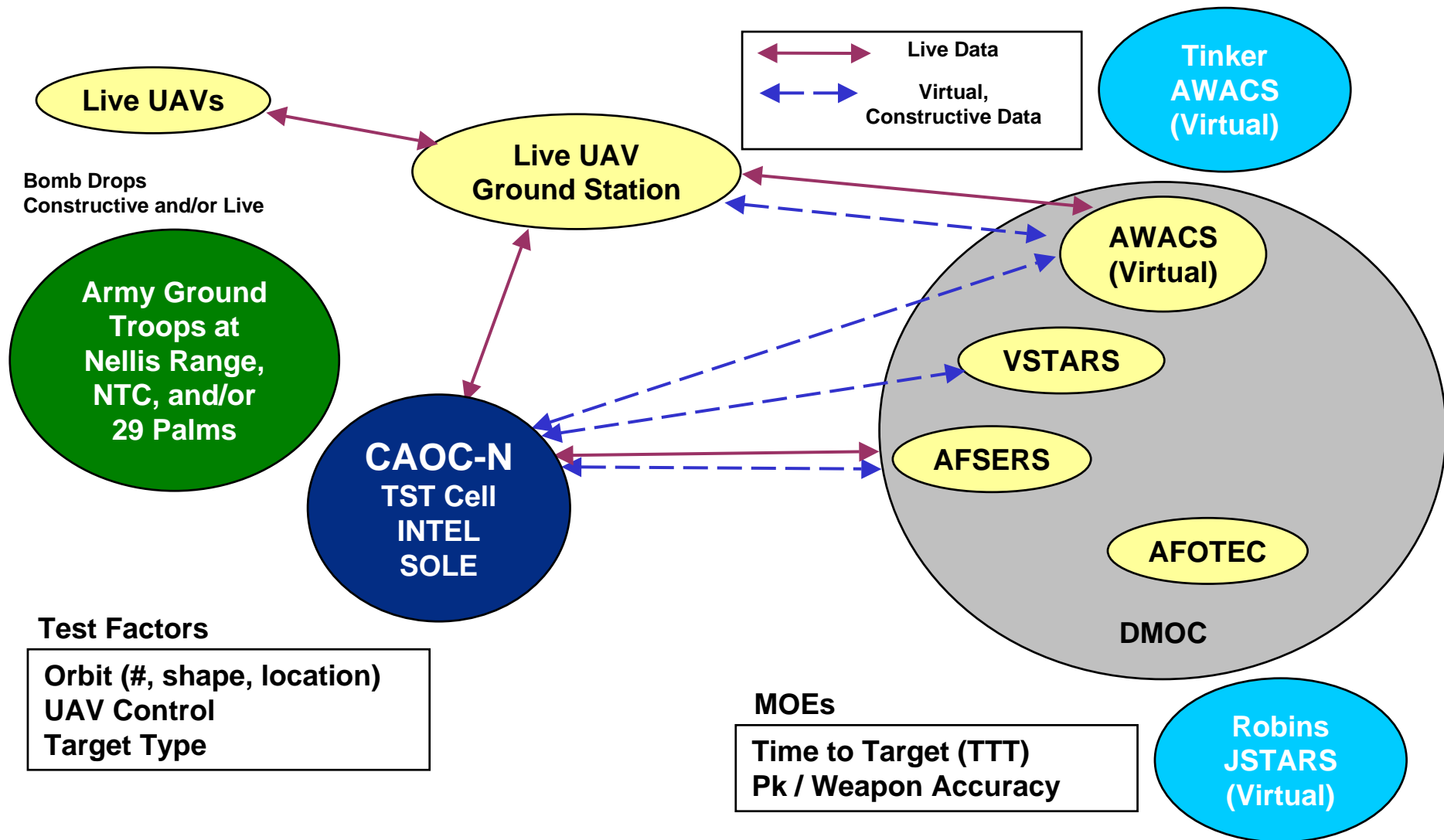


- **Assess Distributed Environments as a Seamless Environment for Conducting T&E**
 - Requirements
 - Enhancements
- **Graduation Exercise**
 - Real World Applicability
 - Proof of Concept
 - UAV C2 limited T&E





DMO and OT&E: AFAMS Three Year Plan





Summary



- **Joint Mission Environment provides T&E infrastructure for system assessments**
 - Interoperability
 - Information Operations
- **Joint Mission Environment requirements based on JFCOM/JNTC Joint Tactical Tasks**
 - Initial capability defined by JSF/FCS and defined JTTs
- **Program participation tailored to specific joint requirements and Joint Mission Environment capability**



Implementation Issues



- **Evaluation Objective**
 - Is an acquisition systems effective/suitable in the joint environment?
 - What is the contribution of an acquisition system to the joint mission?
 - How well can we accomplish a joint mission?
- **Multi-level security**
- **System of systems suitability: reliability, availability, maintainability**
- **M&S supporting functions**
 - Common elements
 - Terrain, atmosphere, etc.
 - Signatures



Implementation Issues (Con't)



- **Coordinating Testing and Training**
 - Schedules
 - Instrumentation and data requirements
- **Constructive/Virtual model availability**
 - Acquisition Digital System Model
 - Threat Models (and threat validation)
 - Model updates and maintenance
- **Constructive, virtual, etc....**
 - Common understanding of application(s)
 - Accreditation for T&E applications
 - Centralized V&V data repository for application accreditation



Implementation Issues (Con't)



- **V&V process with pragmatic accreditation**
 - Application driven
 - Live to virtual to constructive V&V
 - Shared V&V data bases
- **Related and supporting efforts**
 - AF DMOC, Army VTR, etc.
 - “Testing in the Joint Environment” as the capstone requirement?
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